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ABSTRACT

Some ninth-grade students from three Knoxville City high schools have continuously performed substantially less well than those from other city schools in the Tennessee State proficiency tests. A task force developed a plan to work with grade 8 in the middle schools and grade 9 in the high schools to prepare students to perform better on state proficiency and citywide basic skills tests. Pretest/posttest data from experimental (N=170) and control groups (N=175) were analyzed in an attempt to determine the impact of the project on pupil performance. Three groups (teachers, pupils, and parents) were to receive various "treatments" that included many elements of the effective schools efforts. Gross measures such as total percentage passing the language arts and mathematics proficiency tests in various high schools--and comparisons of these scores over time--were used as preliminary indicators of project progress. Additional data included anecdotal reports from teachers, logs and timelines of activities, comments of project researchers, and teacher questionnaire data. Major gains on the percentage of pupils passing the proficiency test were observed in 1985. An analysis of covariance supported the assertion that the sample of project students significantly outperformed a similar sample of control students. Tables and graphs illustrate the data. Appended are 12 references. (MLF)

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RESULTS OF A PROJECT TO IMPROVE PROFICIENCY SCORES IN SELECTED NINTH GRADES 1984-85 SCHOOL YEAR

FIRST-YEAR EVALUATION REPORT KNOXVILLE CITY SCHOOLS (KCS)

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KNOXVILLE CITY SCHOOL (KCS) PROJECT TO IMPROVE PROFICIENCY SCORES IN SELECTED NINTH GRADES
FIRST-YEAR EVALUATION

Introduction

Since the advent of the State Proficiency Tests in Tennessee, some ninth graders from three Knoxville City High Schools have continuously performed substantially less well than those from city schools. The three high schools with low-performing pupils have been Austin-East, Fulton, and Rule. The three high schools generally accept students from eighth grades at three middle schools: Beardsley, Christenberry and Vine. These six schools predominantly serve Knoxville's most impoverished areas as identified by the Federal Chapter I guidelines and census data. The schools are characterized by students who have a history of failing. Often these students also lack parental and community support for education. Their overall academic performance tends to be lower than that of other pupils. Table 1 shows Proficiency Test mathematics (M) and language arts (LA) scores for the eight KCS high schools and for the city for the years 1982, 1983 and 1984. Table 1 clearly shows that Austin-East and Rule ranked at the bottom and Fulton close to the bottom on these scores from 1982-1984.

After some study and review in the spring, 1984 the Superintendent appointed a Task Force to address problems of low proficiency test scores in the identified region. This Task Force developed a proposal which set forth a plan to work with grade 8 in the middle schools and grade 9 in the high schools in an attempt to prepare students to perform better on state proficiency and city-wide basic skills tests. The document for working

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with these students was submitted as a "Proposal for Improving Achievement on Proficiency Tests in Selected Knoxville City Schools." Program activities began in the fall, 1984.

TABLE 1
Percent of Students Passing the State Proficiency Test by Schools, Knoxville, 1982-1984

School	1982		1983		1984	
	M	LA	M	LA	M	LA
Austin-East*	46.4	33.1	59.8	40.6	76.2	54.8
Bearden	92.6	90.4	92.3	86.5	94.1	92.2
Central	94.1	79.6	93.6	85.4	90.9	83.2
Fulton*	91.0	60.7	88.2	71.3	87.7	73.8
Holston	95.1	61.7	93.5	74.8	97.6	80.6
Rule*	74.1	52.3	72.5	53.6	64.1	53.5
South Young	74.8	62.2	78.5	62.7	77.9	67.0
West	82.0	70.1	83.5	80.1	82.1	78.0
City Ave.**	83.0	66.9	83.7	72.1	84.1	74.8

* Schools in this Project.
** City average includes more pupils than just grade nine in these eight schools.
All percents rounded to one decimal place. M = Mathematics; LA = Language Arts

As with many local system projects, activities began before consideration was given to a project evaluation plan. Indeed, project intent is to provide services to all eligible students in the target schools. In May, 1985, the Superintendent contacted the Bureau of Educational Research and Services (BERS), College of Education, University of Tennessee, Knoxville for assistance in achieving two general objectives:

(1) Develop an interim evaluation report covering the first year of operation of this pilot project; and

(2) Develop and design an evaluation format to be used throughout the rest of the project to guide evaluation efforts.

Development of an evaluation design would be a long-term effort but an "interim report" was important to provide some indicators of project

directions. These indicators would be primarily anecdotal and formative. To the degree possible, data collected for this first-year report would become "baseline" (that is, data collected for 1983-84 and previously would be considered baseline for the total project, and data collected for 1985 and subsequent years would become a data bank to be used in assessing project results.)

Gross measures such as total percent passing the language arts (LA) and mathematics (M) proficiency tests in various high schools, and comparisons of these scores over time, were used as preliminary indicators of project progress. Additional, data included anecdotal reports from teachers, logs and timelines of activities, comments of project teachers, and teacher questionnaire data.

Pretest/posttest data from experimental (n=170) and control groups (n=175) were analyzed in an attempt to determine the impact (if any) of the project on pupil performance. This design is shown below.

Time	Condition	MEASURES: Math	Lang. Arts
Pretest	Experimental	- - - - - - - - -	- - - - - - - - -
	Control		
Posttest	Experimental	- - - - - - - - -	- - - - - - - - -
	Control		

The project included several components. Project complexity and inattention to obtaining baseline measures prior to project operation mitigated against developing an evaluation design to identify the impact of various components or treatments. Thus, the evaluation reviews the project as a whole and does not attempt separate analyses by component. The following outline provided direction for the evaluation and a way to organize data collection, analysis and reporting.

Focus → / Data Type ↓	Process (Formative)	Product (Summative)	Level of Implementation
Qualitative	Teacher questionnaires.	Questionnaires. Examples of Activities.	Examples from Figure 1 pp. 8-9.
Quantitative	Teacher records; Timeline, Historical data.	Experimental and Control Comparisons.	Listings (pp. 5-7). Observations.

Limitations

This evaluation occurred under less than optimum conditions in terms of strict research and evaluation design. The most rigorous design useful here is ex post facto and quasi-experimental. Some elements of case study method are also appropriate. Data analysis is primarily arithmetic manipulations: percents, averages, ranks. Some comparisons to city-wide averages are appropriate. It is most important to document, describe and assess the degree of treatment implementation during the first year. The evaluators must know if the treatment is in effect so that 1) project success, if any, can be related to the treatment, or 2) if there is some gain, this will not be attributed to the project if there were little or no implementation. The evaluators must guard against what Charters and Jones (1973) and Hall and Loucks (1977) call the "non event", or non implementation.

According to the Project proposal, the major criterion variable of project success is "Improving Achievement On Proficiency Tests In Selected Knoxville City Schools." The final measures of success, using the criterion of improving achievement on proficiency tests in the three ninth grades, would be a) increase in percent of pupils passing the Proficiency Test (or Basic Skills Tests) or b) increase of the scores achieved by those taking the tests (whether or not the pupil passes). For the first year, comparisons of number/percent passing various tests were effected. The proficiency test scores were used.

Some Context and Implementation Information

According to the proposal, three groups were to receive various "treatments". Those groups and treatments are:

GROUPS		
Teachers/Ed. Personnel	Pupils	Parents/Guardians/Home
Treatments:		
TESA	IEP	More Home-School Effort
TIM	Peer Tutor	Explanation of Model
Class Organization	Community Tutor	Home Stimulation;
Effective Teaching	"Precision Teaching"	Study Habits
Extra Materials	Additional Materials	Aspirations/
Extra In-Service	STL and Group Work	Expectations
	Special Study Skills	

A project staff of a director and three special teachers conducted project activities. They stressed home support (parental involvement) in the project. The students received the following treatments (noted by X) as shown below.

Treatments (Students)	Schools A/E	Fulton	Rule	Bdsly	C' berry	Vine
1. IEP	X	X	X	X	X	X
2. Peer Tutor	X	X	X	X	X	X
3. Community Tutor	X	X	X	X	X	X
4. "Precision Teaching"	X	X	X	X	X	X
5. Additional Materials*	X	X	X	X	X	X
6. STL and Group work**	X		X	X		X
7. Special Studies Skills***	X	X	X	X	X	X

* Prepared learning packets are located in individual schools.
** Fulton and Christenberry project teachers did not take STL formal training but used STL technique with students.
*** These skills were taught in Chapter I Language Arts Classes in the middle and high schools.
Bdsly = Beardsley; C' berry = Christenberry.

The project staff and Chapter I teachers received treatments (noted by X) as shown below. (TESA is planned for 1985-86).

Treatment (Teachers/Ed. Personnel)	A/E	Fulton	Schools Rule	Bdely	C' berry	Vine
1. TESA						
2. TIM*	X	X	X	X	X	X
3. Class Organization/ Effective Teaching	X	X	X	X	X	X
4. Extra Materials**	X	X	X	X	X	X
5. Extra In-Service (STL)	X		X	X		X

* Additional TIM training will be conducted in the second project year.
** The project director helped secure texts and supplies by request.
TIM = Tennessee Instr. Model. STL = Student-Team Learning.

Parents/Guardians received the following treatments (noted by X).

Treatment (Parents/Guardians)	A/E	Fulton	Schools Rule	Bdely	C' Berry	Vine
1. More Home-School Effort	X	X	X	X	X	X
2. Explanation of Model	X	X	X	X	X	X
3. Home Stimulation; Study Habits	X	X	X	X	X	X
4. Aspirations/Expectations	X	X	X	X	X	

Examples of activities accomplished were reviewed by evaluators. A timeline of completed events/ activities for the first year of the project appears as Figure 1 on pages 8 and 9.

Community Support

A side benefit to the activities outlined in the original project proposal was the outstanding support, tutors, and incentive awards furnished to teachers and students by several businesses. The Coca-Cola

Company adopted the Proficiency Project through the Adopt-A-School Project and was particularly supportive. Other groups who helped with the incentive awards are listed below.

TVA
Pro Temp
East Knox Optimist
Gattis-Broadway
Krystal-Broadway
Creswell-Broadway
Roddy Manufacturing
St. Mary's Hospital
UT Professor Scheduled field experience students at Christenberry and Fulton
Child and Family Services-TVA
Webb Students
Chamber of Commerce
Kroger's-Oak Ridge Highway
Thundercraft Boats
Knoxville Blue Jays
Unit IV-Motivational Activities
Kiwanis Builders Club
Delta Sigma Theta
Alpha Kappa Alpha
First Tennessee Bank
Diana Morgan-News In Education Coordinator-Knoxville News Sentinel
Rep. Pete Drew State Rep. 15th District
Ross-The-Boss & Company

"Effective Schools"

This project, although not so labelled at the outset, included many elements of the popular "effective schools" efforts. The evaluators compared project efforts against a model of effective schooling elements. (Edmonds, 1979; Brookover et. al., 1982; See Bibliography Section).

Sampling Procedures: Experimental and "Control" Groups

Approximately 1000 students were involved in the Proficiency Project (approximately 600 in the three ninth grades and 400 in the three 8th grades). Two samples were drawn for comparison and analysis. Using all eligible ninth grade pupils from the three target schools an "experimental" sample was drawn. Next, from "Other" schools a stratified random sample was drawn to serve as a "control." After drawing the sample, only pupils who had four scores (pretest M and LA; posttest M and LA) were included in the analyses. This resulted in a decrease from the total sample to a useable sample of 345 randomly selected students. The total sample (N=345) met the .95 confidence limits (N=278 required). The two randomly drawn samples (Experimental= 170; Control=175) were ample for analyses but fell slightly short of the .95 confidence limits when all who did not have four

test scores were deleted. Samples were drawn at random from alphabetic lists; the experimental group from an alphabetic list of all grade-nine project students; the control group from alphabetic lists by school of grade 9 pupils. The samples were picked to assure approximately the same relative percentage of free/reduced lunch participants for both experimental and control groups (stratified by SES).

Date	Event/Activity	Outcomes
Sept., 1984	Letters sent to parents about basic skills test	Parents agreed to test
Begin Oct., 1984 and ongoing	Parent Conferences with basic skills teachers, appropriate classroom and Chapter I teacher, and guidance counselor	Communicated with parent through conference or some other way
Oct. 5, 1984	Language Arts and Math Basic Skills pre-test results	Established student eligibility for project
	Standardized Tests/Achievement Test Scores from previous school year (or most recent scores available)	Established student eligibility for project
	Pre-proficiency Test (9th grade students only)	Established student eligibility for project
Oct. 5, 1984	Initial meeting with principals to provide them	-overview of project -opportunity for questions/ suggestions
Oct. 8, 1984	Meeting with task force and project teachers who	-received teacher job descriptions, -received plan for project implementation -given opportunity for questions/suggestions
Week of Oct. 15, 1984	Initial meeting in individual schools	-Principal project teacher, basic skills teachers and Chapter I teachers meet with staff, -Principals explain project model -project teacher gets needs from staff and basic skills teachers
Week of Oct. 22, 1984	Follow-up staff meeting in individual schools	-prioritized list of needs as expressed by teachers, basic skills teachers and test scores -"Proficiency objectives" given to all 8th grade teachers -Objectives <u>all</u> teachers needed to emphasize discussed and specifics pointed out.

Figure 1. Timeline (Date, Event, Outcome(s)): KSC Project to Improve Scores. (1985)

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On-going	Individual classroom observations	-Identified skills and methods to teach -Developed IEP for pupils -Monitored progress on IEP -Teacher demonstrated to student what he/she is to do
On-going	Parents tutoring students	-Increased parent involvement with students
On-going	Study packets provided for home use	-Increased parent involvement
On-going	Communicated with parent-teacher	-Increased parent awareness and organization involvement with project
On-going	Coordinated with Chapter I Parent Advisory Council	-Increased parent awareness and involvement with project
On-going	School visitations by parents completed parent partnership contracts	-Increased parent awareness of and involvement with project -Increased parent involvement
On-going	Provided information on student team learning	tutoring activities developed
On-going	UT field study students used as tutors	tutoring activities developed
On-going	Chapter I aides tutored students	tutoring activities developed
On-going	Used peer tutors provided by service organizations	tutoring activities developed
On-going	Director of Youth Volunteers in action trained tutors	Trained tutor available for project
Spring Semester, 1985	Special Studies Skills Program (A.S.C.D.) used	-Additional resources used to enhance project goals
On-going	T.I.M. utilized to enhance "precision teaching"	-Additional resources used to enhance project goals
On-going	Computer software used in middle school for review	-Additional resources used to enhance project goals
On-going	Community Agencies personnel used as resources	-Additional resources used to enhance project goals
On-going	Volunteers used as resources	-Additional resources used to enhance project goals

(Figure 1. continued)

FIRST-YEAR RESULTS

Some Qualitative and Quantitative Teacher Data

In October, 1984 a total of 26 teachers responded to a project needs assessment. Eighteen (69%) indicated a willingness to participate in extra inservice to help these youngsters; one (4%) said "no" and 7 (27%) did not respond. Respondents indicated a need for help in the following areas:

Topic	N	Topic	N
Grading	1	Basic Skills	4
Expectations	4	Motivation, STL	6
Grouping	1	Parent Involvement	3

One "pretest" question asked if teachers used the Basic Skills pretest information for planning their instruction. The majority indicated that they would use these scores if they had them, or if they had them in useable form.

In May, 1985 teachers responded to a questionnaire about project performance and about some of their (the teacher's) own skills. Sixty-six persons responded: 26 from high schools, 33 from middle schools and 7 who did not identify their schools. Table 2 summarizes data from the "posttest" of teacher comments. Even after this project, with its parent involvement emphasis, nearly half (48.5%) of the teachers felt that they had "not much" or less open communications with the community, but only 16.7% felt that they had this low a level of communications with parents. Only 21.2% had "much" or "very much" open communications with the community but 47% had this level of communication with parents. (These results suggest a need for more work in community involvement). Forty-seven percent of respondents used the services of the project staff "much" or "very much". Another 33.3% used the project staff "some". Respondents also commented on what they gained from the project.

TABLE 2
Responses of H.S., Mid. School, and Other (No ID) to Posttest (5/85)
Assessment of Proficiency Project Items Dealing with
Communications to Key Groups and Use of Special
Proficiency Teacher Services

I have an open line of communication with:

		Response												
		N/A;N/R		Not at all		Not much		Some		Much		Very Much		Total
	Resp. GP.	N	%	N	%	N	%	N	%	N	%	N	%	N
PARENTS	H. S.	0	0	2	7.7	1	3.8	9	34.6	6	23.1	8	30.8	26
	Mid.	1	3.0	1	2.	5	15.2	14	42.4	8	24.2	4	12.1	33
	Other	0	0	1	14.3	0	0	1	14.3	3	42.9	2	28.6	7
	Sub.	1	1.5	4	6.1	6	9.1	24	36.4	17	25.8	14	21.2	66
STUDENTS	H.S.	0	0	0	0	1	3.8	0	0	5	19.2	20	76.9	26
	Mid.	1	3.0	0	0	0	0	0	0	19	57.6	13	39.4	33
	Other	0	0	0	0	0	0	0	0	4	57.1	3	42.9	7
	Sub.	1	1.5	0	0	1	1.5	0	0	28	42.4	36	54.5	66
COMMUNITY	H.S.	1	3.8	3	11.5	5	19.2	7	26.9	3	11.5	7	26.9	26
	Mid.	3	9.1	5	15.2	10	30.3	12	36.4	2	6.1	1	3.0	33
	Other	1	14.3	3	42.9	1	14.3	1	14.3	1	14.3	0	0	7
	Sub.	5	7.6	11	16.7	16	24.2	20	30.3	6	9.1	8	12.1	66
TOTAL THIS SET		7	3.5	15	7.6	23	11.6	44	22.2	51	25.8	58	29.3	198
I have used services of Proficiency Teacher to foster my Basic Skills/Proficiency Program.														
	H.S.	4	15.4	0	0	0	0	7	26.9	6	23.1	9	34.6	26
	Mid.	2	6.1	2	6.1	3	9.1	12	36.4	8	24.2	6	18.2	33
	Other	1	14.3	1	14.3	0	0	3	42.9	1	14.3	1	14.3	7
	Sub.	7	10.6	3	4.5	3	4.5	22	33.3	15	22.7	16	24.2	66
Grand Total		14		18		26		66		66		74		264

The following shows the number of teachers (out of 66) who believed that the proficiency teacher (project staff) provided:

	H.S.	Mid. Sch.	Other	Total	%
Motivation/Incentive	16	23	7	46	69.7
Line of communication	21	24	6	51	77.3
Helpful suggestions/info.	21	23	5	49	74.2
Useful material	20	27	5	52	78.8
Consistent followup	16	15	4	35	53.0
Other	1	2	0	3	4.5
Total N	26	33	7	66	

The following general comments/suggestions were mentioned by all three teacher groups:

All English classes should teach the same thing at the same times.

A plan is needed for entering and releasing students in the Chapter I program.

Proficiency teachers behaved in a professional manner and were extremely helpful.

Students who fail the proficiency exam should be identified early in the year.

Other comments addressed the following types of concerns: textbooks that follow objectives closely, time to examine materials, and project awareness for everyone in the schools.

Initial Gross Comparisons

The project's major purpose was to "improve achievement on proficiency tests in selected Knoxville City Schools." The state proficiency test is given in grade nine. Thus, the "target" schools were three high schools: Austin-East, Fulton and Rule. Table 3 (p.14) shows the percent of grade-nine students (by school and city average) passing the state proficiency tests in Math (M) and Language Arts (LA) for three pre-project years (1982, 83, and 84) and after one year of the project (1985). Table 3 also shows the average percent passing for the years 1982-84 combined.

Data show that while scores in some schools have remained fairly

constant over the years (e.g. LA in Bearden with a low of 86.5% and high of 94.5%, or 8% change) other schools have had considerable variability (e.g. Austin-East with a low LA of 33.1% and high LA of 69.3%, or 36.2% change). Table 4 shows the range (between high and low scores) on M and on LA for the years 1982-1985 for each school. On five of six comparisons the ranges in the target schools exceeded the ranges in the city; in Fulton (M) the target-school range was less than the city's. Only one of 12 ranges (Holston, LA) reported for non-target schools exceeded five of the six ranges for the target schools. Target schools had greater variability in scores than did the other schools.

Figure 2 shows Table 3 data in graphic form. Note that the target schools are gaining (the lines are converging). Figure 3 shows gains over the "baseline" of 1982-84 percents and that these gains are more pronounced in target than in other schools or in the city-as-a-whole.

Those combined results point to considerable progress in 1985 in improving the percent of pupils passing the proficiency tests in the three target schools. One must, however, be alert to at least one possible source of artifact and distortion: the target schools had a much greater possibility of data variability than the other schools. That is, they started lower and had greater room for change than did some other schools.

Another way to look at the change in percent passing the proficiency test is to compare the <u>combined averages</u> of the three target schools and of the other five schools. Table 5 presents the results by school for each year, 1982-1985. Data in Table 6 show that from 1982-1985 there was considerable consistency in the percent passing M and LA in the target schools and in the other schools. In Math (target schools) the 3-year average is 76.2 with a high of 77.5 and a low of 74.7; in other schools the Math average is 86.7 with a high of 86.8 and low of 86.7. There is

(cont'd p. 17)

TABLE 3
Annual Percent Passing Proficiency Tests by School (1982-1985)
and Average Percent by Target and Other
Schools, Knoxville, 1982-1984

	1982		1983		1984		1985		X 82-84	
Target Schools	M	LA	M	LA	M	LA	M	LA	M	LA
Austin-East	46.4	33.1	59.8	40.6	76.2	54.8	85.6	69.3	60.8	42.8
Fulton	91.0	60.7	88.2	71.3	87.7	73.8	91.0	82.2	88.9	68.6
Rule	74.1	52.3	72.5	53.6	64.1	53.5	87.8	64.7	70.2	53.1
X	74.7	51.1	76.6	58.6	77.5	62.9	88.5	73.6	76.2	57.4
Others										
Bearden	92.6	90.4	92.3	86.5	94.1	92.2	94.5	92.3	93.0	89.7
Central	94.1	79.6	93.6	85.4	90.9	83.2	90.3	82.0	92.9	82.7
Holston	95.1	61.7	93.5	74.8	97.6	80.6	97.7	87.6	95.5	72.4
S. Young	74.8	62.2	78.5	62.7	77.9	67.0	80.8	68.7	77.1	64.0
West	82.0	70.1	83.5	80.1	82.1	78.0	90.3	80.1	82.5	76.1
X	86.8	74.1	86.7	77.8	86.7	79.5	91.0	83.5	86.7	77.2
City X	83.0	66.9	83.7	72.1	84.1	74.8	88.3	78.8	83.6	71.2

*City average included more pupils than the sum of these eight schools.

TABLE 4
Range in Percent Passing Tests, Grade 9
Knoxville City 1982-1985

	Range in Percent Passing Tests			
	M	Years	LA	Years
A. East*	39.2*	82-85	36.2*	82-85
Bearden	1.9	82-85	1.9	82-85
Central	3.8	82-85	2.4	82-85
Fulton*	0.0*	82-85	21.5*	82-85
Holston	2.6	82-85	25.9	82-85
Rule*	13.7*	82-85	12.4*	82-85
S. Young	6.0	82-85	6.5	82-85
West	8.3	82-85	10.0	82-85
City	5.3	82-85	11.9	82-85

* = "Target Schools"

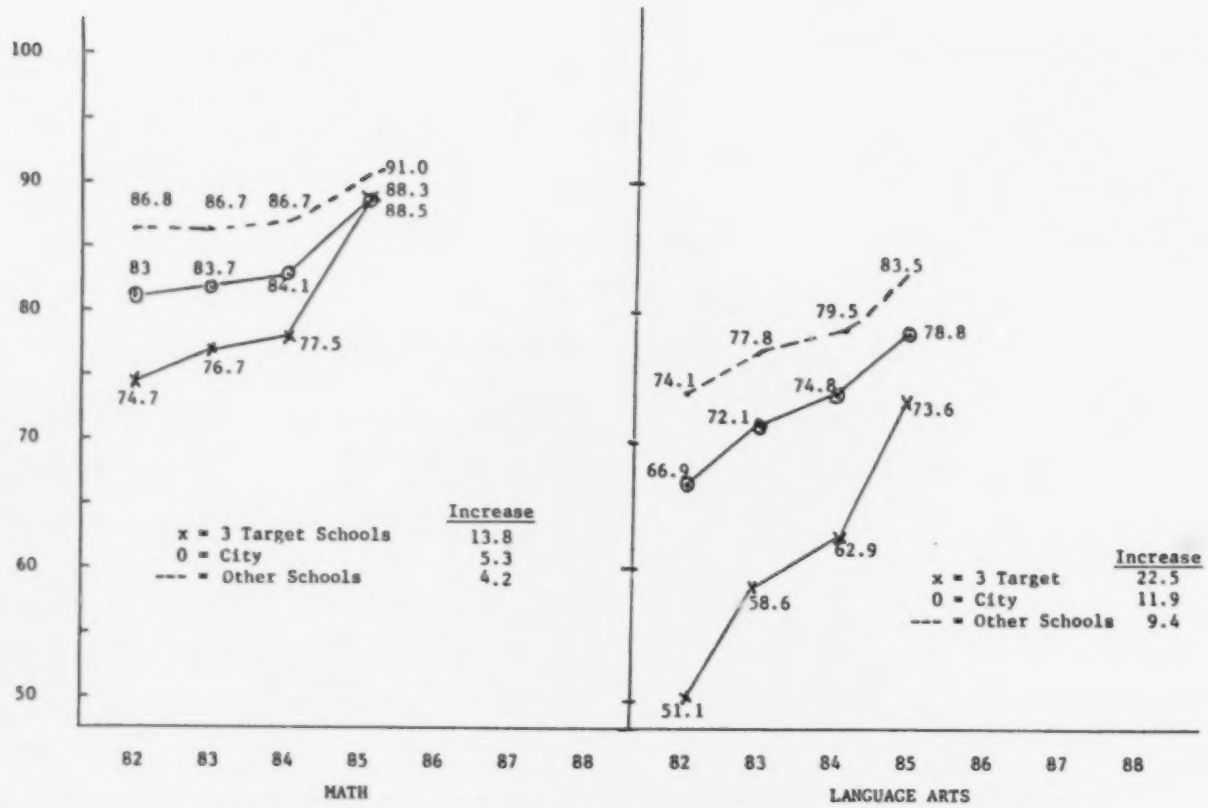

Figure 2. Percent Passing Math and Language Arts in Proficiency Tests in 3 Target Schools, Total City, 5 other schools by year (1982-1985), Knoxville High Schools.

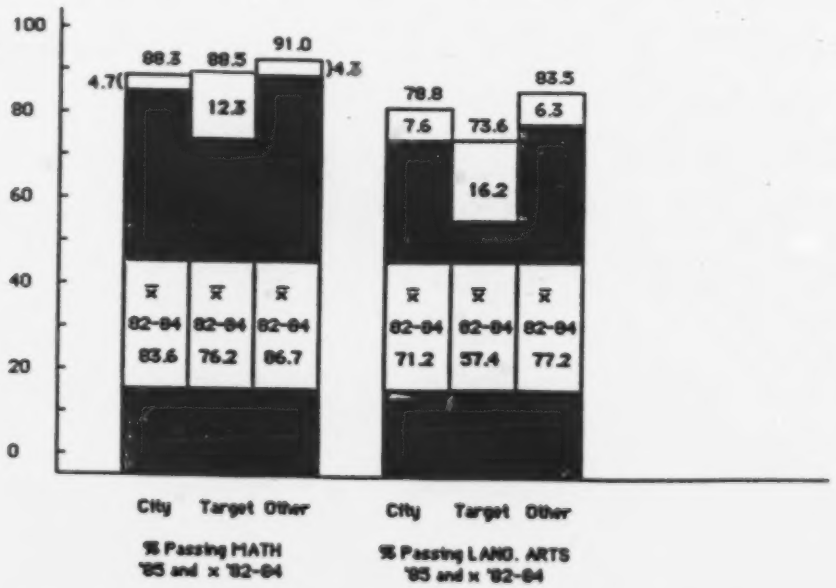

Figure 3. Comparison of Percents Passing Math (M) and Language Arts (LA) Proficiency Tests in 3 Target Schools, 5 other schools and city in 1985 and in the average of 1982-1984: Actual Percents and Percent Difference Between 1985 and Average of 1982-1984: Knoxville City Schools.

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TABLE 5
Percent of Students Passing the State Proficiency Test by Schools, Knoxville, 1982-1985

	1982		1983		1984		1985	
School	M	LA	M	LA	M	LA	M	LA
Austin-East*	46.4	33.1	59.8	40.6	76.2	54.8	85.6	69.3
Bearden	92.6	90.4	92.3	86.5	94.1	92.2	94.5	92.3
Central	94.1	79.6	93.6	85.4	90.9	83.2	90.3	82.0
Fulton*	91.0	60.7	88.2	71.3	87.7	73.8	91.0	82.2
Holston	95.1	61.7	93.5	74.8	97.6	80.6	97.7	87.6
Rule*	74.1	52.3	72.5	53.6	64.1	53.5	87.8	64.7
South-Young	74.8	62.2	78.5	62.7	77.9	67.0	80.8	68.7
West	82.0	70.1	83.5	80.1	82.1	78.0	90.3	80.1
City Ave.**	83.0	66.9	83.7	72.1	84.1	74.8	88.3	78.8

* Schools in this Project. All percents rounded to one decimal place.
**City average included more pupils than the sum of these eight schools.

TABLE 6
Number and Percent of Grade 9 Pupils Taking and Passing Math (M) and Language Arts (LA) Tests 1982-1984 in City, Target Schools (N=3) Other Schools (N=5)

	City			Target			Other		
Math	Pass	Take	%	Pass	Take	%	Pass	Take	%
1984	1505	1789	84.1	392	506	77.5	1113	1283	86.7
1983	1414	1689	83.7	385	502	76.7	1029	1187	86.7
1982	1472	1774	83.0	416	557	74.7	1056	1217	86.8
Total (82-84)	4391	5252	83.6	1193	1565	76.2	3198	3687	86.7
Lang. Arts									
1984	1352	1808	74.8	326	518	62.9	1026	1290	79.5
1983	1218	1690	72.1	295	503	58.6	923	1187	77.8
1982	1190	1780	66.9	287	562	51.1	903	1218	74.1
Total (82-84)	3760	5278	71.2	908	1583	57.4	2852	3695	77.2

slightly more variation in LA: (target 3-year average of 57.4 with a high of 62.9 and low of 51.1); (other 3-year average of 77.2 with a high of 79.5 and low of 74.1). Table 6 data show a continuing tread of generally consistent results when you group the schools into target and other. Thus, the 3-year average seems reasonable as a baseline against which to measure and the scores tend to support the choice of the three target schools as locations for the treatment.

Table 7 compares data from 1985 (the first year after treatment) with data from the 3-year baseline of 1982-1984. Although there were gains city-wide in the percent passing the M and LA tests, these gains were distributed heavily in favor of target schools. Note that the target school gains in M were 12.3 percent (compared to 2.4 percent for other schools and 4.7 percent for city); target school gains in LA were 16.2 percent (compared to 4.6 percent for other schools and 7.6 percent city-wide). Another way to look at this difference in gains is to compare the percent passing M and LA in target and in other schools (in 1985 and in the baseline of 1982-84) with the percent passing in the city, wich the city percent as a divisor. In 1982-84 target schools percents passing M and LA were only 91.1 and 80.6 percent of the city-wide rate. Target schools were 8.9 and 19.4 below the city (100) but other schools were 105.9 and 110.8 or 5.9 and 10.8 above the city. In 1985 there has been a change: The target schools are just above (.2) the city in M and only 6.6 (compared to 19.4) below in LA. The other schools are still slightly above the city (3.1) in M and 5.9 (compared to 10.8) above the city in LA. The target schools, using the city as a constant 100, gained 9.1 in M and 12.9 in LA; the other schools lost (2.8) in M and (4.9) in LA.

These shifts support other data in suggesting that there were important gains in percent of grade 9 pupils passing M and LA proficiency tests in the target schools. The gains were both absolute and comparative.

In Table 8 the schools are ranked (1-8) on percent passing M and LA tests. (See Table 5, p.16 for raw data). Schools are ranked for each year: 1982, 1983, and 1984. Sums of ranks for 1982-84 are compiled and schools are ranked for this three-year period. Finally the 1985 ranks are shown, followed by the differences between 1985 ranks and 1982-84 ranks. For each school there are two factors (M and LA) that can either gain (+), lose (-) or stay the same (0) in the comparative rankings 1985 and 1982-84. For the 3 target schools there are 3 x 2 or 6 possibilities; for the other 5 schools there are 5 x 2 or 10 possible changes and for the City there are 8 x 2 or 16 possible changes. Those relationships are:

	Possible		Gain		Loss		Even	
	N	%	N +	%	N -	%	N 0	%
Target (N=3)	6	100	5	83.3	1	16.7	0	0
Other (N=5)	10	100	3	30	5	50	2	20
City (N=5)	16	100	8	50	6	37.5	2	12.5

If the gains and losses are compiled, they are +4.5 and -4.5 for M and +6 and -6 for LA. There were 10.5 possible points for gain and 10.5 points for loss. Those points were distributed as follows:

TOTAL "POINTS"

	Gain		Loss		
	N	%	N	%	Tot.
Target Schools (N=3)	7	66.7	1	9.5	8
Other Schools (N=5)	3.5	33.3	9.5	90.5	13
Total	10.5	100	10.5	100	21

PERCENT

Gain	Loss	
87.8	12.2	100
26.9	73.1	100

Thus 7 of 8 total "points" for target schools (87.8%) were gain and 12.2% were loss; 3.5 of 13 total "points" for other schools (26.9%) were gain and 73.1% were loss. For total possible changes (5 of 6 or 83.3% positive) and for percent of total "points" (7 of 10.5 positive, or 66.7%), the target schools out performed the other schools by considerable margins. Put another way, 66.7% of all gain went to 3 target schools and 90.5 of all loss went to other schools (N=5); 87.8% of target school "points" were (+)

TABLE 7

Number and Percent of Grade 9 Pupils Taking and Passing Math (M) and Language Arts (LA) Tests 1985 Compared to Combined 1982-1984 Results in Target (N=3), Other (N=5) and City (N=8) Schools, and Change in Percents (Decrease) or Increase, 1985 vs. Average of 1982-1984

	MATH			LANGUAGE ARTS			PERCENT PASSING AS PERCENT of city	
	Pass	Take	%	Pass	Take	%	M	LA
1982-1984								
Target	1194	1565	76.2	908	1583	57.4	91.1	80.6
Other	3162	3570	88.6	2824	3577	78.9	105.9	110.8
City	4391	5252	83.6	3760	5278	71.2	100.0	100.0
1985								
Target	433	489	88.5	362	492	73.6	100.2	93.4
Other	1138	1250	91.0	1043	1249	83.5	103.1	105.9
City*	1578	1787	88.3	1411	1791	78.8	100.0	100.0
CHANGE of PERCENTS 1985 and 1982-84								
Target			12.3			16.2	9.1	12.8
Other			2.4			4.6	(2.8)	(4.9)
City			4.7			7.6	0	0

*City Average included more pupils than the sum of these eight schools.

TABLE 8

Rank (1-8) of Knoxville City High Schools (1982-1985) by Percent of Grade 9 Pupils Passing Math (M) and Language Arts (LA) Proficiency Tests

	1982		1983		1984		82-84**				1985		DIFF (+,-) 82-84 and 85	
	M	LA	M	LA	M	LA	M		LA		M	LA	M	LA
							N	RK	N	RK				
Austin-East*	8	8	8	8	7	7	23	8	23	8	7	6	+1	+2
Bearden	3	1	3	1	2	1	8	3	3	1	2	1	+1	0
Central	2	2	1	2	3	2	6	2	6	2	4.5	4	-2.5	-2
Fulton*	4	6	4	5	4	5	12	4	16	5	3	3	+1	+2
Holston	1	5	2	4	1	3	4	1	12	4	1	2	0	+2
Rule*	7	7	7	7	8	8	22	7	22	7	6	8	+1	-1
South Young	6	4	6	6	6	6	18	6	18	6	8	7	-2	-1
West	5	3	5	3	5	4	15	5	10	3	4.5	5	+ .5	-2

* = Target Schools ** Possible range is from 3 (best) to 24 (worst)

N = Sum of Ranks 1982-1984; RK = Rank of N.

r_s M (82-84 and 85) = .83 r_s LA (82-84 and 95) = .73

but only 26.9 of other school "points" were (+). Results suggest that positive changes are occurring in the target schools.

The Control/Experimental Group Comparisons

Using the experimental and control group samples, statistical analyses were made between the pretest and posttest data for M and LA results. First, comparisons were made between the pretest data of the two groups to provide an indication of the degree of similarity of each group's performances on the pretests. Posttest comparisons were then made. These analyses suggested pre/post comparisons using an Analysis of Covariance (ANCOVA) design.

Demographics of Sample

The experimental and control samples were compared on several demographic variables. A general description of the samples (all grade-9 pupils) by race and sex shows that the experimental group contained nearly three times as many non-white pupils as the control group. Distribution by sex was fairly even.

	Race				Sex				Total
	White		Non-White		Male		Female		
	N	%	N	%	N	%	N	%	
Exper (N=170)	82	48	88	52	83	49	87	51	170
Control (N=175)	134	76	41	24	93	53	82	47	175

Comparability of Samples on Test Scores*

The initial statistical procedure was to analyze the pretests (M, LA) and check for homogeneity of variance. The pretest scores of the two groups were not alike (statistically) but their variances were statistically comparable. The experimental group began the project with pretest scores lower than control-group pretest scores.

*SAS procedures for t-tests and for ANCOVA (General Linear Models Procedure) were used.

	X	SD	t	P	VAR=
MATH (Pre)					
EXPER (170)	48.994	14.84	3.291	.001	F= 1.06; P= .70
CONTROL(175)	54.331	15.28			
LANGUAGE ARTS (Pre)					
EXPER (170)	64.894	18.65	1.818	.069	F= 1.20; P= .237
CONTROL (175)	68.720	20.41			

Similar t-test analyses of posttest scores showed that the groups were the same (statistically) and that there was homogeneity of variance on M but not LA. Inspection of mean scores shows that, although the experimental group began with lower pretest scores than the control group, its posttest scores were slightly higher than those of the control group.

	X	SD	t	P	VAR=
MATH (Post)					
EXPER (170)	70.011	12.78	-.461	.645	F=1.17; P=.310
CONTROL (175)	69.400	11.83			
LANGUAGE ARTS (Post)					
EXPER (170)	95.464	18.61	-.653	.515	F= 1.50; P= .009
CONTROL (175)	94.006	22.76			

Since the experimental group started below the control group but ended up outscoring the control group slightly, an analysis of covariance design was selected to determine if the pre-post gains of the experimental group were statistically significant. The covariate was the pretest scores. Homogeneity of the covariate was checked between experimental and control groups (M and LA). If $p<.05$, differences in variances would be considered too great to use the ANCOVA design. Satisfactory homogeneity of variance was obtained (M; $p<.583$; LA $p<.167$). Using the ANCOVA procedure, statistically significant results ($p<.05$) were found between the experimental and control groups. (Actual probabilities were: Math $p<$ .0004; LA $p<$ .0007). The experimental group outperformed the control group on the pre-post gains on the 1984-85 State Proficiency Examination. This was the avowed goal of the project as stated in the project proposal.

"Effective Schools" Elements and KCS Project

The Knoxville project to increase proficiency test scores of selected grade-nine pupils employed key elements of the "effective schools" approach. A summary is presented below.

Edmonds' "Five Correlates"	KCS Implementation Efforts
Strong Administration Leadership Basic Skills Focus Climate Conducive to Learning High Expectations Monitor Pupil Progress	• Task Force • Study Skills, Chapter I, etc. • Rewards System (e.g."Coke Incentive Awards") • Work with Teachers, Community, "Good Press" • Pre-proficiency Scores; Admission to Project
Other "Effective Schools" Characteristics	KCS Implementation Efforts
Structure Strong Central Office Support Inner City, Low SES, High % Minority Elementary/Middle School Focus Extra Inservice Community Involvement Continuity/Stability "Success" is narrowly defined	• Task Force • Task Force, Proposal, Visibility • Yes • Partial. Grade 9 was "target" • Yes (TIM, STL) • Yes (Community and Parent) • (Time will tell) • Increase % Passing Proficiency Test

Generally speaking, the KCS project incorporated most, if not all, of the "effective schools" elements described in the literature. Not suprisingly, the KCS project obtained positive results in keeping with the findings of other similar effective schools project. The KCS project differs slightly from many other effective school effort in that it is working in middle school (grade 8) and in high school (grade 9) rather than the usual elementary school, or elementary/middle school focus. The challenge will be to maintain the growth of the first year and continue the improvement that has been started. The work and results in the high school are interesting, given the usual elementary-school focus of these projects.

SUMMARY AND CONCLUSIONS

Based upon several analyses of varying degrees of sophistication, the "Knoxville City School Project to Improve Proficiency Scores in Selected Ninth Grades" seems to have been successful in 1984-85. The evaluation lacks precise enough design and controls to state a cause and effect relationship. Results, however, seem clear: a project, following some tenets of effective schooling work, was implemented in schools that traditionally had not done well on the state proficiency tests. A review of records and events, interviews, and observations indicate that the "treatment" was implemented.

Major gains on the single criterion measure -- percent of pupils passing the proficiency test--were observed in 1985. An analysis of covariance supported the assertion that the sample of project youngsters significantly outperformed a similar sample of "control" pupils.

Since the State Proficiency Test is a criterion-referenced test, it is possible for all city schools to increase their percents of pupils passing. Thus, even if the target schools should slip in the rankings (among the eight schools in KCS), they can continue to improve relative to the criterion (standard) of 100 percent passing the State Proficiency Test. Noting the rather substantial gains in 1985, it may be unrealistic to anticipate equally large gains in future project years. A realistic goal would now be to hold the gains obtained and then to make small gains each successive year.

As with many "Effective Schools" projects this evaluation was not able to identify which treatments had the greatest impact. The project as a whole seemed to contribute to considerable increases in the percent of grade-nine pupils passing the proficiency test in three "target" schools: Austin-East, Fulton and Rule.

RECOMMENDATIONS*

Although the project seems to have made some substantial gains, there are a few recommendations that may both aid the project and improve the evaluation effort. Some recommendations are:

1. The project should continue.
2. Teacher questionnaires (pre/post) should have some standardization and relate specifically to the project.
3. Parent involvement has improved, but it needs more work as does the total area of Community involvement.
4. More work with community and peer tutors. ("Have TVA or some group make posters to aid with the project".)
5. Teachers should get pretest data for planning earlier in the year (by 10/15/84 some said that they did not have the data. Is it possible to give those tests at the end of the prior year so data will be available from the first day of school?)
6. Reduction of, or help with, paperwork: Teachers would like help with class lists, failure, tracking of objectives and skills, etc.
7. Better standardization of data on ancillary benefits, such as truancy, discipline, test information, including Basic Skills scores, etc.
8. All LA and M teachers in target schools should receive TESA training.
9. Project teachers in cooperation with principals should use standardized forms for student record keeping.
10. More communication and coordination should exist among Basic Skills, Chapter I and Proficiency Teachers.

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*Some recommendations drew upon lengthy respondent comments on questionnaires. A summary of these responses does not appear in the report, but the comments are available for review at the project office.

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